IN THE CLAIMS:

Please cancel without prejudice Claims 1, 2, 9, 10, 11 and 12. Please amend Claim 3 as follows.

1. (canceled)

2. (canceled)

3. (currently amended) A method for adjusting brake booster vacuum of an engine of a motor vehicle at a brake booster thereof, said method comprising the steps of:

initially setting a brake booster pressure of the brake booster equal to a predetermined pressure;

predicting brake booster vacuum;

determining whether the predicted brake booster vacuum is above a threshold vacuum;

modifying operation of the engine to lower a brake booster vacuum of the engine if said step of determining determines the predicted brake booster vacuum is above the threshold vacuum; and

periodically repeating said steps of predicting, determining and modifying;

~~The method of Claim 2,~~ wherein said step of ~~algorithmically~~ predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, and vehicle speed;

determining from vehicle speed a vehicle deceleration of the motor vehicle;

determining from the vehicle deceleration whether an apply brake event of the motor vehicle is occurring;

determining from the vehicle deceleration whether a release brake event of the motor vehicle is occurring;

determining from the vehicle deceleration whether a no brake event of the motor vehicle is occurring;

obtaining a change in brake booster pressure as a function of the vehicle deceleration from an apply brake look-up table if the apply brake event is determined as occurring;

obtaining a change in brake booster pressure as a function of the vehicle deceleration from a brake release look-up table if the brake release event is determined as occurring;

obtaining a change in brake booster pressure set equal to zero if the no brake event of the motor vehicle is determined as occurring; and

calculating brake booster vacuum responsive to the obtained change in brake booster pressure.

4. (original) The method of Claim 3, wherein said step of acquiring further comprises acquiring check valve pressure loss of the brake booster; and wherein said step of calculating comprises:

determining a present brake booster pressure responsive to the obtained change in brake booster pressure and a predetermined prior brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and the check valve pressure loss;

determining whether the present brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the present brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the present brake booster pressure per a predetermined brake booster vacuum replenishment time constant if the present brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the present brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.

5. (withdrawn) The method of Claim 2, wherein said step of algorithmically predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, vehicle speed, and check valve pressure loss of the brake booster;

determining from vehicle speed a vehicle deceleration of the motor vehicle;

determining from the vehicle deceleration whether a release brake event of the motor vehicle is occurring;

determining from the vehicle deceleration whether a no brake event of the motor vehicle is occurring;

calculating predetermined parameters of the motor vehicle;

determining, if one of the release brake event and the no brake event is determined as occurring, a brake release brake booster pressure responsive to said step of calculating predetermined parameters wherein the brake booster pressure is set equal to the determined brake release brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and a predetermined check valve pressure loss;

determining whether the brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the brake booster pressure per a predetermined brake booster vacuum replenishment time constant if the brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.

6. (withdrawn) The method of Claim 2, wherein said step of algorithmically predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, brake pedal position, and check valve pressure loss of the brake booster;

determining from the brake pedal position whether an applied brake event of the motor vehicle is occurring;

determining from the brake pedal position whether a no brake event of the motor vehicle is occurring;

calculating predetermined parameters of the motor vehicle;

determining, if a no brake event is determined as occurring, a no brake brake booster pressure responsive to said step of calculating predetermined parameters wherein the brake booster pressure is set equal to the determined no brake brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and a predetermined check valve pressure loss;

determining whether the brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the present brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the brake booster pressure per a predetermined

brake booster vacuum replenishment time constant if the brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.

7. (withdrawn) The method of Claim 2, wherein said step of algorithmically predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, and brake pedal position;

determining from the brake pedal position whether an apply brake event of the motor vehicle is occurring;

determining from the brake pedal position whether a release brake event of the motor vehicle is occurring;

determining from the brake pedal position whether a no brake event of the motor vehicle is occurring;

obtaining a change in brake booster pressure as a function of brake pedal position from an apply brake look-up table if the apply brake event is determined as occurring;

obtaining a change in brake booster pressure as a function of brake pedal position from a release brake look-up table if the release brake event is determined as occurring;

obtaining a change in brake booster pressure set equal to zero if the no brake vent of the motor vehicle is determined as occurring; and

calculating brake booster vacuum responsive to the obtained change in brake booster pressure.

8. (withdrawn) The method of Claim 7, wherein said step of acquiring further comprises acquiring check valve pressure loss of the brake booster; and wherein said step of calculating comprises:

determining a present brake booster pressure responsive to the obtained change in brake booster pressure and a predetermined prior brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and a predetermined check valve pressure loss;

determining whether the present brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the present brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the present brake booster pressure per a predetermined brake booster vacuum replenishment time constant if the present brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the present brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.

9. (canceled)

10. (canceled)

11. (canceled)

12. (canceled)

13. (withdrawn) The algorithm of Claim 10, wherein said step of predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, vehicle speed, and check valve pressure loss of the brake booster;

determining from vehicle speed a vehicle deceleration of the motor vehicle;

determining from the vehicle deceleration whether a release brake event of the motor vehicle is occurring;

determining from the vehicle deceleration whether a no brake event of the motor vehicle is occurring;

calculating predetermined parameters of the motor vehicle;

determining, if one of the release brake event and the no brake event is determined as occurring, a brake release brake booster pressure responsive to said step of calculating predetermined parameters wherein the brake booster pressure is set equal to the determined brake release brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and a predetermined check valve pressure loss;

determining whether the brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the brake booster pressure per a predetermined brake booster vacuum replenishment time constant if the brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.

14. (withdrawn) The algorithm of Claim 10, wherein said step of predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, brake pedal position, and check valve pressure loss of the brake booster;

determining from the brake pedal position whether an applied brake event of the motor vehicle is occurring;

determining from the brake pedal position whether a no brake event of the motor vehicle is occurring;

calculating predetermined parameters of the motor vehicle;

determining, if a no brake event is determined as occurring, a no brake brake booster pressure responsive to said step of calculating predetermined parameters wherein the brake booster pressure is set equal to the determined no brake brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and a predetermined check valve pressure loss;

determining whether the brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the present brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the brake booster pressure per a predetermined brake booster vacuum replenishment time constant if the brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.

15. (withdrawn) The algorithm of Claim 10, wherein said step of predicting comprises:

acquiring predetermined input variables of the motor vehicle, the variables comprising manifold absolute pressure, atmospheric pressure, and brake pedal position;

determining from the brake pedal position whether an apply brake event of the motor vehicle is occurring;

determining from the brake pedal position whether a release brake event of the motor vehicle is occurring;

determining from the brake pedal position whether a no brake event of the motor vehicle is occurring;

obtaining a change in brake booster pressure as a function of brake pedal position from an apply brake look-up table if the apply brake event is determined as occurring;

obtaining a change in brake booster pressure as a function of brake pedal position from a release brake look-up table if the release brake event is determined as occurring;

obtaining a change in brake booster pressure set equal to zero if the no brake vent of the motor vehicle is determined as occurring; and

calculating brake booster vacuum responsive to the obtained change in brake booster pressure.

16. (withdrawn) The algorithm of Claim 15, wherein said step of acquiring further comprises acquiring check valve pressure loss of the brake booster; and wherein said step of calculating comprises:

determining a present brake booster pressure responsive to the obtained change in brake booster pressure and a predetermined prior brake booster pressure;

determining a brake inlet booster pressure of the brake booster responsive to the manifold absolute pressure and a predetermined check valve pressure loss;

determining whether the present brake booster pressure is greater than the brake inlet booster pressure;

setting a brake booster pressure rate of change equal to zero if the present brake booster pressure is less than the brake inlet booster pressure;

determining a brake booster pressure rate of change responsive to a difference between the brake inlet booster pressure and the present brake booster pressure per a predetermined brake booster vacuum replenishment time constant if the present brake booster pressure is greater than the brake inlet booster pressure;

calculating a new brake booster pressure as a function of the present brake booster pressure and the brake booster pressure rate of change for a predetermined time, wherein the predetermined time is related to the periodic repeating;

setting the new brake booster pressure equal to atmospheric pressure if the new brake booster pressure is greater than atmospheric pressure; and

predicting the brake booster vacuum as a function of a difference between atmospheric pressure and the new brake booster pressure.